THE presence in wheat of green seeds that germinate poorly was first observed in 1935 in an experiment started to determine the relationship between the degree of maturity of seeds and their viability. A large number of heads of Baart wheat were tagged at flowering on April 9 and representative samples of the tagged heads were collected at 4-day intervals thereafter until maturity. The heads were dried and stored for several weeks, threshed by hand, and the seeds stored in the seed room for at least 6 months before germination tests were made. The seeds obtained 4 and 8 days after flowering were generally predominantly green in color, the color apparently being located entirely in the aleurone layer. None of the 4-day-old seeds germinated, but some of those collected 8 days after flowering were viable. The germination of the samples collected 24, 28, and 32 days after flowering were 97, 71, and 99%, respectively. These data are pertinent to the present discussion because it was noted that the sample collected 28 days after flowering contained 24% of seeds that were entirely green in color. These either did not germinate or were much delayed in germination. The sample collected 24 days after flowering contained 6% of green seeds, while that collected 32 days after flowering contained all normal white seeds. The weights of 100 kernels from the samples collected 24, 28, and 32 days after flowering were 2.66, 3.19, and 4.05 grams, respectively.

The germination of the green seeds in the sample collected 28 days after flowering showed no improvement during the following 2 years. The 3-year average germination of the above three samples was 89, 62, and 95%, respectively. In all of these and subsequent tests, a seed was considered as having germinated when both the radicle and plumule had reached a length of 2 to 3 mm. During germination the green seeds took up water as rapidly as did the white seeds.

GREEN SEEDS AND GERMINATION PERCENTAGE

Although green-colored seeds have occurred commonly in wheat harvested while some of the heads were immature, no data on the germination of such seeds have been found in the literature. To test further the relationship between green color and low germination, heads of Baart, Onas, Sonora, Jenkin, and Marquis wheat were tagged at flowering in the spring of 1936 and subsequently collected, dried, threshed, and germinated. Heads of untagged Sacramento barley also were collected. The methods were similar to those described above for Baart wheat in 1935.

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